2.0 Watershed Characteristics

The present-day Alley Creek and Little Neck Bay watershed (Figure 1-2) is urbanized and sub-urbanized. Although the watershed has undergone major changes, significant effort and interest by the citizens living in the area and New York City agencies has resulted in recognition of the ecological, environmental and educational value of Alley Creek and its tidal wetlands. In contrast to the filling in of wetlands and "hardening" of the shoreline with bulkheads that characterizes most of New York City's pre-colonial wetlands much of Alley Creek's wetlands and the Little Neck Bay wetlands in Udalls Cove are designated parks. The location of Alley Creek and Little Neck Bay in a highly urbanized city, however, has led to the creation of combined sewer systems and stormwater systems that discharge to the creek and bay.

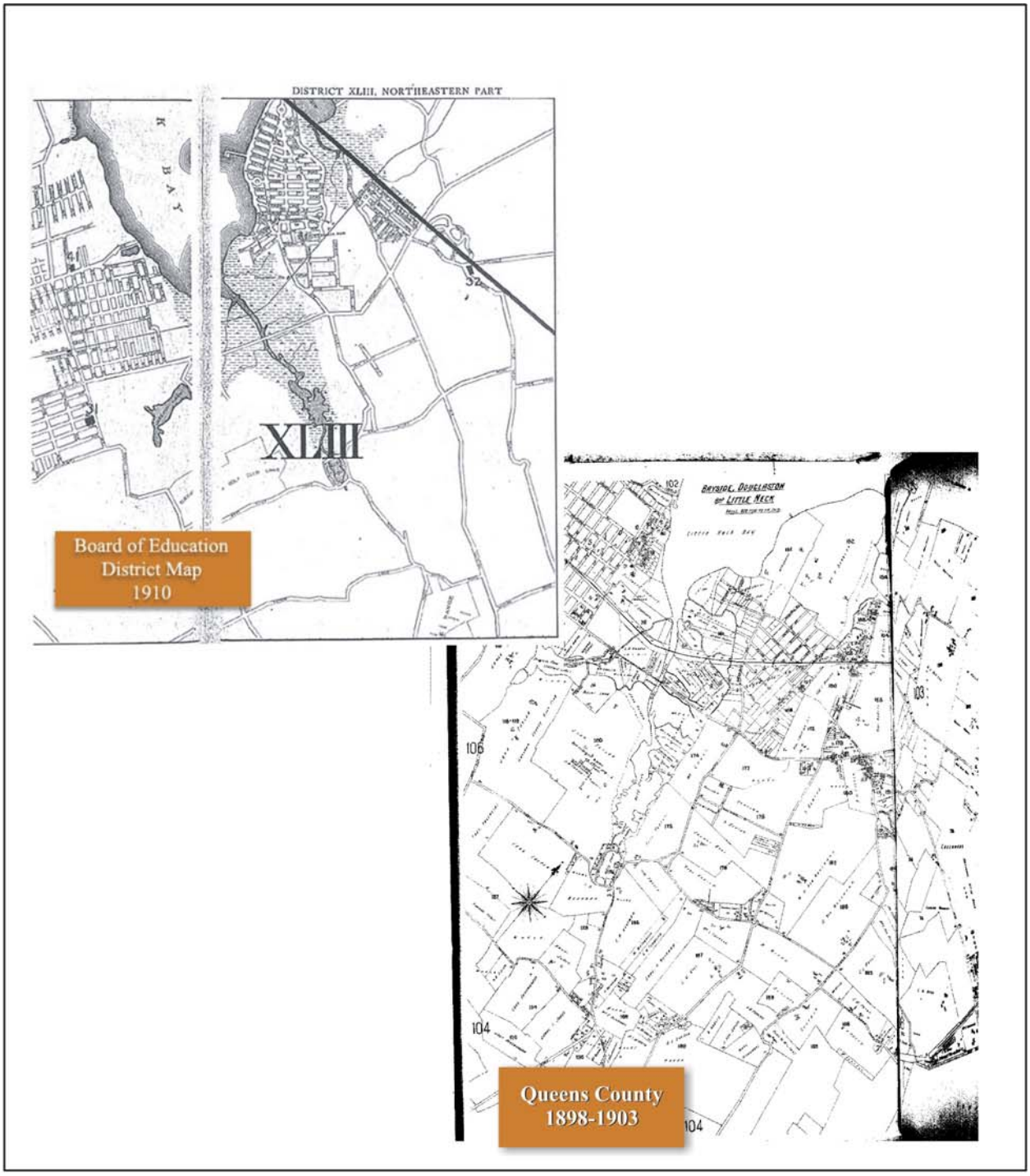
This section describes the history and urbanization of the watershed and other physical changes impacting the Alley Creek and Little Neck Bay. Information is also included related to existing and proposed land uses and zoning in the watershed and in the riparian areas surrounding Alley Creek and Little Neck Bay. This section also addresses possible landside pollutant sources from activities that have the potential to impact water quality in the creek and bay.

2.1 HISTORICAL CONTEXT OF WATERSHED URBANIZATION

The first inhabitants of the watershed were the Matinecock Indians, who thrived for centuries on Little Neck Bay's wealth of wampum shells and seafood. The Matinecocks called the bay Men-haden-Ock, which translated as "place of fish." However, in the 1630s through the 1650s, the native Americans were displaced by English and Dutch settlers. During the colonial period farming was the primary use of the land, with a few large families as the predominant land owners. There were also small "truck" farmers, artisans, merchants and oysterman. The commercial trading center for the area was the Alley Pond settlement, so-named after a farm pond on the creek upstream of its discharge to Little Neck Bay. (Bayside Historical Society, 1989; Newsday, 2005).

This pattern of development continued into the mid-19th century. In the early 19th century the construction of several turnpikes improved farmers' access to the urban markets in New York City. The 1850s and 1860s saw large numbers of working class German and Irish immigrants settle in the industrial sections of western Queens, while the northeastern neighborhoods near Little Neck began to be a suburban haven for the country homes of wealthy New Yorkers. Figure 2-1 includes sections of two historic early 20th century maps of Alley Creek and Little Neck Bay. The map of the study area dated from 1898 to 1903 shows large lots, farms and estates. Higher density housing areas and developed neighborhoods can be seen. (Douglaston/Little Neck Historical Society, 2005). The Board of Education Map from 1910 shows Alley Creek and Udalls Cove wetlands in addition to streets.

During the mid-1800s there was a thriving commercial shellfishery in Little Neck Bay, which was particularly known for the harvest of small hard clams commonly known both locally and outside the area as Little Neck clams. There was a local community of watermen who thrived on the harvest of oysters and clams. However, the developing suburban population



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Alley Creek and Little Neck Bay Watersheds, Early 1900s

Alley Creek and Little Neck Bay Waterbody/Watershed Facility Plan **FIGURE 2-1**

in the adjacent watershed placed pollution pressures on the resource, and the condemnation of the shellfish beds due to pollution took place in 1909. (Federal Writers Project, 1939).

Continued development of the area as a commuter suburb of New York City had significant physical impacts on the waterbody, particularly as a biological habitat. The Cross Island Parkway, built in the late 1930s along the western shoreline of the Bay, radically transformed the previous natural shoreline habitat. Similarly, the Long Island Railroad, Northern Boulevard and the Long Island Expressway running along the east-west corridor disrupted wetland areas along either side of Alley Creek at the southern end of Little Neck Bay. (Bayside Historical Society, 1989). Figure 2-2 is a current aerial view of the assessment area showing the extent of development and urbanization.

However, since the 1960s there has been particular interest by local environmental groups and by various city, state and federal agencies to restore some of the natural wetland areas that were degraded by previous development. Two locations where significant restoration success has occurred and is continuing are the restoration of Aurora Pond on the Gabler's Creek tributary to Udalls Cove, on the east side of Little Neck Bay; and Alley Pond, a wetland that has been restored as part of Alley Park, at the southern end of the bay. (Udalls Cove Preservation Committee, 2005; Alley Pond Environmental Center, 2005.) In its Hudson-Raritan Estuary study, the US Army Corps of Engineers (USACE, 2004) cites Little Neck Bay as one of "the more ecologically significant areas within the Western Long Island Sound," citing its important northern quahog clam beds. The Alley Pond Park is identified as a priority ecosystem restoration site with potential salt marsh restoration of approximately 60 acres (USACE, 2004). In its Comprehensive Conservation and Management Plan (CCMP), the Long Island Sound Study identifies Alley Pond as one of its "Stewardship-in-depth" sites, citing its importance as an important winter waterfowl area and a very important Spring Striped Bass recreational fishery, (Long Island Sound Study, 2005). The national environmental conservation group, Trout Unlimited, cited Alley Creek as an "urban river success story," describing recent efforts to study and improve the fishery habitat and the potential for establishing an unusual coldwater brook trout fishery in this "periurban" environment. (Trout Unlimited, 2002).

2.2 LAND USE CHARACTERIZATION

2.2.1 Existing Land Uses

Alley Creek is a tributary of Little Neck Bay that converges with the Upper East River near Long Island Sound. Udalls Cove also feeds into Little Neck Bay, but shares a border with Nassau County. The creek and bay are located on the north shore of eastern Queens County, adjacent to the Nassau County border. The land surrounding Alley Creek is mostly parkland, while that surrounding Little Neck Bay is largely residential. Alley Creek flows in a generally south-to-north direction. Bay Terrace and Bayside border Little Neck Bay and Alley Creek to the west, while Douglas Manor and Douglaston lie to the east. Oakland Gardens is located to the southwest of Alley Creek and Alley Pond Park.

The existing land uses along Alley Creek, Little Neck Bay and Udalls Cove primarily consist of parkland and residential areas. Land immediately surrounding Udalls Cove is mostly open space, with a few small parks. Douglas Manor, abutting Nassau County, is almost completely residential, with single-family detached residences, except for a small inland park

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Alley Creek and Little Neck Bay Development and Urbanization

Alley Creek and Little Neck Bay Waterbody/Watershed Facility Plan **FIGURE 2-2**

and a strip of parkland running the length of Douglas Manor's western shoreline. This parkland is a shorefront walkway developed for the use of all Douglas Manor property owners. South of Douglas Manor is Douglaston, where small parcels of vacant, commercial and low-density residential lands border Alley Pond Park, which surrounds Alley Creek on its eastern, western and southern shores. Long Island Railroad Northern Division, the Long Island Expressway, Northern Boulevard and the Cross Island Parkway all traverse Alley Pond Park, dividing it into separate parcels and limiting the movement of reptiles, amphibians and small mammals throughout the area.

North of Alley Pond Park, extending from 43rd Avenue to 24th Avenue, is a large residential area consisting of single family homes. Crocheron Park and John Golden Park lie halfway between 43rd and 24th Avenues. Immediately northeast of 24th Avenue is the Bay Terrace Shopping Center at 26th Avenue and Bell Boulevard. To the north of the shopping center existing land use is again residential, consisting of garden apartments, two-family homes and high-rise buildings.

The northernmost parcel of land bordering Little Neck Bay is Fort Totten, a United States Government Reservation, built in the mid- to late- 1800s to protect the eastern entrance of New York Harbor. It is zoned as a Special Natural Area District to protect the natural features should it be redeveloped for another use. The Cross Island Parkway contains a waterfront pedestrian/bike path (see Plate 2-1) extending from Fort Totten to Northern Boulevard that is accessible by pedestrian bridges over the roadway.

2.2.2 Land Use Zoning

Starting at the northeast edge of the waterbody within New York City, land immediately southeast of Udalls Cove is zoned C3 (commercial local retail), while surrounding land is zoned for low density residential, detached and attached (R1-2, R-2 and R3-1). The whole Douglas Manor peninsula is zoned for detached housing on large lots (R1-2). The land immediately surrounding Alley Creek is designated parkland. The residential area to the east of the creek is R1-2, while that to the west is R2. Residential land on the western shore, north of the railroad tracks is zoned R3-2 and R2. Moving north, Crocheron Park and John Golden Park are designated parkland. The area between John Golden Park and Fort Totten is known at Bayside. Previous zoning allowed R5 (mid-density, including multi-story rowhouses). The NYCDCP rezoned 350 blocks in the Bayside area of northeastern Queens, Community District 11 (CD11). Much of the area is now rezoned to contextual districts, permitting development of only one- and two-family homes, to maintain Bayside's longstanding neighborhood character. To curb recent development trends toward unusually large single-family houses in areas currently zoned R2, NYCDCP established a new low-density contextual zoning district, R2A. This new district limits floor area and height and other bulk regulations that are different from the former R2 district (NYCDEP website 2005). Fort Totten is zoned R3-1, C3 and NA-4. The NA-4 designation is a Special Natural Area District (SNAD). This protects the area by limiting modifications in topography, by preserving tree, plant and marine life, and natural water courses, and by requiring clustered development to maximize preservation of natural features.

Plate 2-1: Bike Path along western shoreline of Little Neck Bay near 35th Avenue, looking northwest

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Alley Creek and Little Neck Bay Waterbody/Watershed Facility Plan

Plate 2-1

Generalized land use within the New York City portion of the Alley Creek and Little Neck Bay assessment area and within the riparian area of 1/4 mile of Alley Creek and Little Neck Bay shoreline are shown on Figure 2-3a and Figure 2-3b. Land use within the Alley Creek, Little Neck Bay drainage area is summarized in Table 2-1. The main land use is residential with sizeable fractions of Open Space and Outdoor Recreation and Vacant Land. It should be noted that major sections of Vacant Land are parks (see * on Figure 2-3a) but are listed as vacant.

Table 2-1. Land Use Within the Alley Creek and Little Neck Bay Drainage Area

Land Use Category	Percent of Area (NYC)	
	Riparian Area (1/4 mile radius)	Drainage Area
Commercial	1%	4%
Industrial	0%	0%
Open Space & Outdoor Recreation	29%	15%
Mixed Use & Other	2%	3%
Public Facilities & Institutions	17%	7%
Residential	38%	62%
Transportation & Utility	2%	1%
Vacant Land	11%	8%

2.2.3 Proposed Land Uses

As of the report date, there are no proposed land use changes or major New York City development projects in the Alley Creek and Little Neck Bay assessment area.

2.2.4 Neighborhood and Community Character

The land surrounding Udalls Cove, known as Udalls Cove Preserve, is open and undeveloped due to the efforts of a local grassroots community group dedicated to its preservation. Mapped as a New York City Park in 1972, it includes a 2.5 mile nature trail and park ranger tours. Douglas Manor is residential with houses on large landscaped lots. In 1997, the Landmark Preservation Commission (LPC) designated a Douglaston Historic District which covers 550 homes, all of Douglas Manor and part of Douglaston. The LPC designated the Douglaston Hill Historic District in 2004. The Douglas Manor shorefront walkway is intended for the use of residents. Douglaston Yacht Club lies at the end of Beverly Road and provides waterfront recreational activities including the DMA Beach. The Long Island Rail Road (LIRR) crosses Alley Creek just north of 43rd Avenue. The area south of this is Alley Pond Park. At 655 acres, the park is the second largest in Queens. Recreational activities are provided by 26 acres of playing fields, a nature train, and walking and bicycle paths. Educational programs and cultural events are held in the Alley Pond Environmental Center. Oakland Lake, a freshwater lake and wetlands area added to the park in 1990, features wildlife and bird habitat and a promenade.

The residential area northwest of Alley Pond Park is made up of single family homes on small lots, each having its own parking space. Crocheron Park and John Golden Park, north of the residential area, provide many recreational activities, such as Little League, baseball and tennis. The Cross Island Bike Path also begins in this area and travels north. Residential areas north of these two parks are small single-family homes, three-story rowhouses and small apartment buildings. The Bayside Marina (see Plate 2-2) is in this general area too. Fort Totten, with its south shore in Little Neck Bay and north shore in the East River, provides Little League, soccer and wildlife viewing areas. The recent rezoning of Bayside to limit the size and density of development is evidence of the neighborhood character desired by the residents (NYCDCP, 2005).

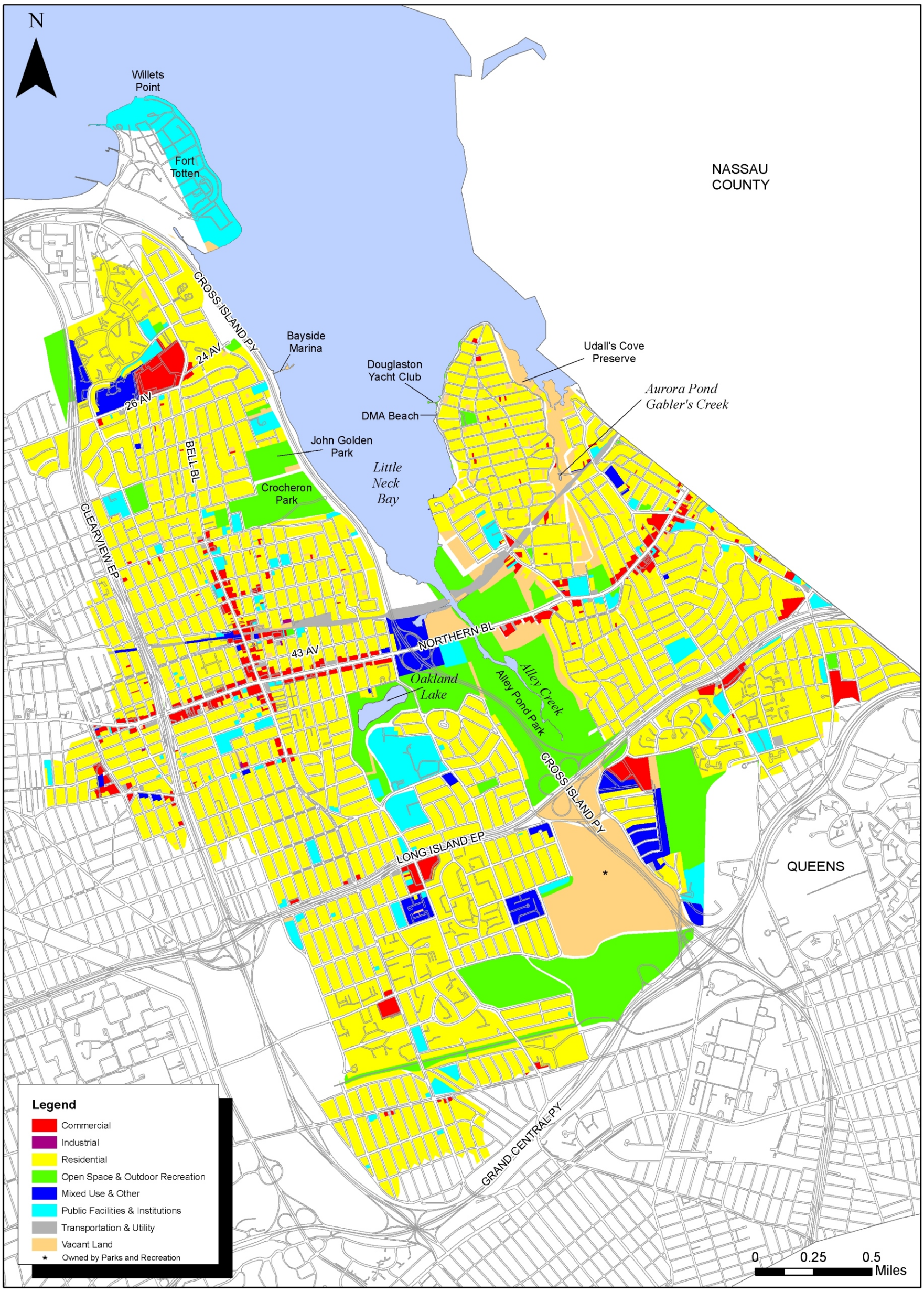
2.2.5 Consistency with the "Waterfront Revitalization Program" and "Comprehensive Waterfront Plan"

The Waterfront Revitalization Program (WRP) has designated Alley Pond Park, Udalls Cove and Ravine and Little Neck Bay as Special Natural Waterfront Areas (SNWA) and Significant Coastal Fish and Wildlife Habitats. The second designation arises from the locally rare natural habitats utilized by a diverse number of fauna. Tidal wetland habitats are found in Alley Creek, along the shoreline of Douglaston and Douglas Manor and in Udalls Cove and Ravine. Smaller pockets may be found along the eastern and southern shores of Fort Totten and the eastern edge of the Cross Island Parkway.

The existing as well as the proposed future land uses for Alley Creek and Little Neck Bay are generally consistent with the intent and goals of the WRP and the recommendations made in the Plan for the Queens Waterfront and the New York City CWP. There is a plan to acquire and transfer to NYCDPR a portion of land on the eastern side of Udalls Cove. This plan is consistent with the SNWA designation. Another plan includes exploring the feasibility of park use at Fort Totten and providing public access to Udalls Cove and Ravine to facilitate environmental education and passive recreation. As long as visitors are monitored or kept to certain natural areas, these plans would be in accordance with the WRP and CWP and would also take into account the SNWA and Significant Coastal Fish and Wildlife Habitat designations.

2.3 REGULATED SHORELINE ACTIVITIES

An investigation of selected existing federal and state databases was performed in an effort to gather information on potential land-side sites and/or activities that may have the potential to contribute to affect water quality within the Alley Creek Study area, including Little Neck Bay. The site area includes Alley Creek and Little Neck Bay to a point where it meets the East River. Only areas within the Queens County border were assessed. The study area limits generally encompassed the area immediately adjacent to and extending to the nearest adjacent mapped street to Alley Creek and Little Neck Bay. For the purposes of this assessment, sources that were reviewed for their potential affect upon surface waters included the existence of known contaminant spills, the existence of state or federal superfund sites, the presence of SPDES permitted discharges to these waterbodies, and other sources that may have the potential to adversely affect water quality.



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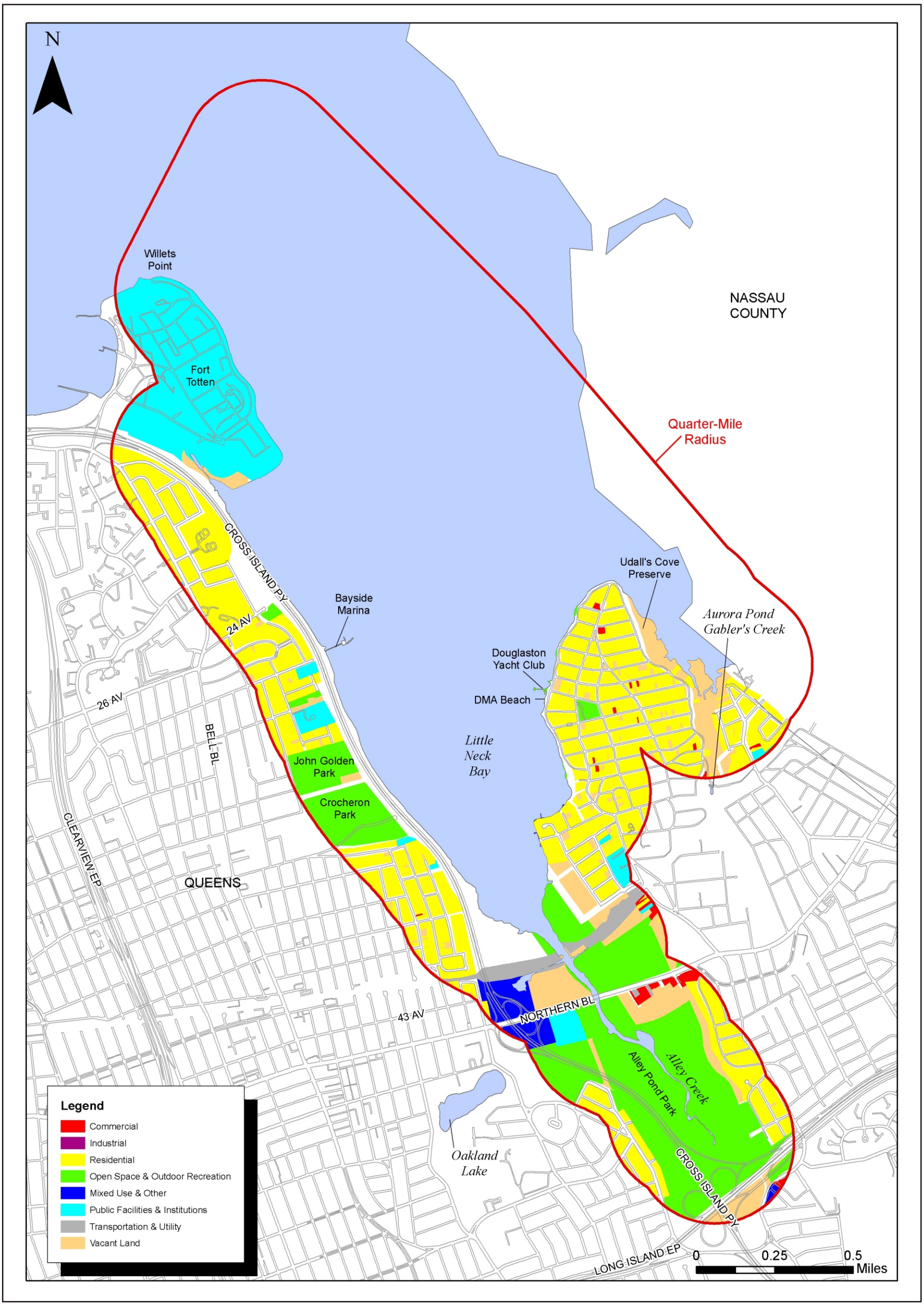
Alley Creek and Little Neck Bay Waterbody/Watershed Facility Plan

Alley Creek and Little Neck Bay Generalized Land Use Map (NYC)

FIGURE 2-3a



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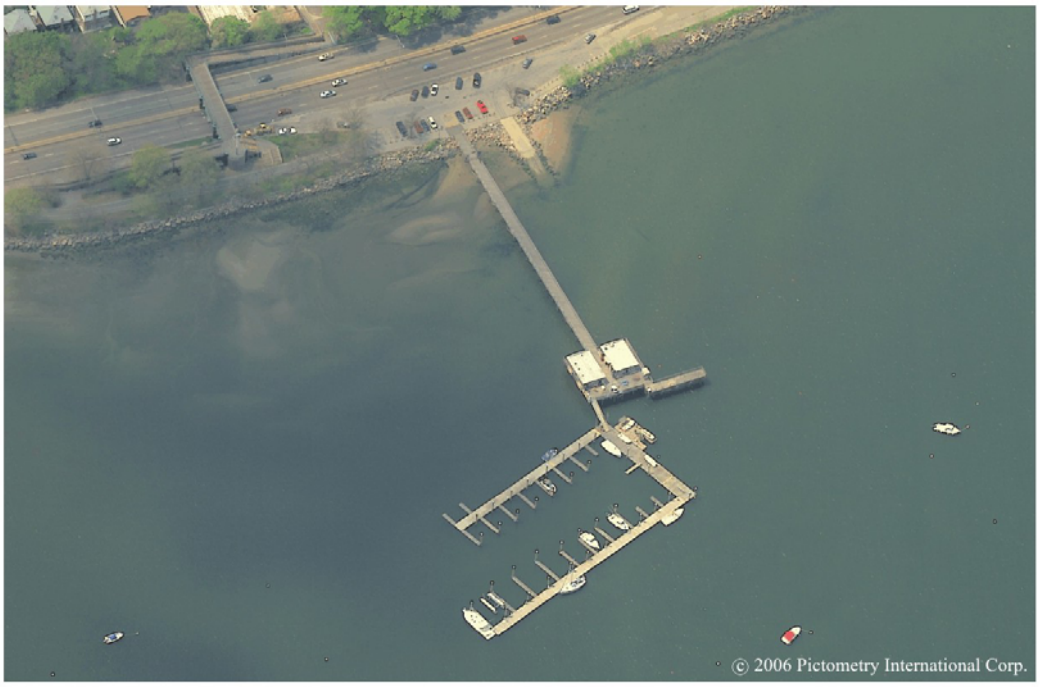
Alley Creek and Little Neck Bay Waterbody/Watershed Facility Plan

Alley Creek and Little Neck Bay Generalized Land Use Map (NYC) (1/4 Mile Radius)

FIGURE 2-3b



Bayside Marina near 28th Avenue, looking west

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Alley Creek and Little Neck Bay Waterbody/Watershed Facility Plan

Plate 2-2

2.3.1 USEPA and NYSDEC Database Search Results

The USEPA Superfund Information System, which contains several databases with information on existing superfund sites, was reviewed. These databases included: the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS), Resource Conservation and Recovery Act Information (RCRAinfo), Brownfields Management System and the National Priorities List (NPL). In addition to these federal databases, several databases maintained by the NYSDEC were also reviewed. These included the NYSDEC Spill Incident and the Environmental Site Remediation databases, which allow searches of the NYSDEC brownfield cleanup, state superfund (inactive hazardous waste disposal sites), environmental restoration and voluntary cleanup programs and the Petroleum Bulk Storage program database.

A review of the USEPA Superfund Information System indicated that there are no federally listed sites located in proximity to Alley Creek or Little Neck Bay. A review of the NPL and Brownfields database indicated that there are no sites within the study area. The NYSDEC State Superfund Program indicates that an inactive hazardous waste disposal site is located within the Fort Totten Coast Guard property. Fort Totten is located immediately east of the Throgs Neck Bridge in the northwestern corner of Little Neck Bay at the mouth of the bay. A review of the RCRA database indicated that there is one large quantity generator, three small quantity generators, two conditionally-exempt, small quantity generators and three non-identified generator types within proximity of the study area. Under RCRA, a large quantity generator produces over 1,000 kilograms of hazardous waste or over 1 kilogram of acutely hazardous waste per month, while small quantity generators produce between 100 kilograms and 1,000 kilograms of waste per month. Conditionally-exempt, small quantity generators generate 100 kilograms or less per month of hazardous waste, or 1 kilogram or less per month of acutely hazardous waste. RCRA sites in proximity to the study area are listed in Table 2-2.

Table 2-2. RCRA Sites Located in the Vicinity of Alley Creek and Little Neck Bay

Site Name	Address
RCRA Large Quantity Generators	
NYCDOT Bridge BIN 2231900 – Fort Totten	Cross Island Parkway Bridge
RCRA Small Quantity Generators	
Perdido Prods Construction Shop	37-22 23rd Street GRD WHSE (1)
NYCDEP - New Douglaston Pump Station	Parkland North of Long Island Expressway
Best Way Cleaners Corporation	84-26 37th Avenue
RCRA Conditionally-Exempt Small Generator	
Exxon – Tsoukalas & Sons S/S # 7510	Northern Boulevard
Posterloid Corporation	43-01 22nd Street, 4th Floor (1)
Non-Identified RCRA sites (2)	
NOYE, Incorporated	77-05 37th Avenue (1)
NYCDOT BIN 2231870-Northern Boulevard	Northern Blvd over Cross Island Expressway
NYC Dept. of Sanitation Shea Stadium Garage	127-45 34th Avenue

(1) Address represents the address of the registered handler, not the facility.
(2) Indicates sites that do not have a specified handler type description.

The NYSDEC Petroleum Bulk Storage database identified several underground storage tanks (USTs) in the immediate vicinity of Alley Creek and Little Neck Bay. According to the database, there are a total of three (3) UST sites in proximity to the creek. These sites contain USTs that are either in service or closed. The storage capacities of these USTs range between 550 and 13,500 gallons and they store gasoline, No. 6 fuel oil, diesel, and other products. The UST sites and additional information are identified in Table 2-3. The NYSDEC Petroleum Bulk Storage database also revealed that there are no Major Oil Storage Facilities (MOSFs) in the vicinity of Alley Creek or Little Neck Bay.

Table 2-3. Underground Storage Tanks (UST) in Proximity to Alley Creek and Little Neck Bay

Site	Address	Tank Capacity	Product Stored	Number of Tanks	Status
John's Auto Service	231-06 Northern Blvd. Queens, NY	4,000 Gallons 550 Gallons	Gasoline	3 8	In Service Closed-Removed
Red's Service Inc.	233-02 Northern Boulevard Queens, NY	550	Other	12	Temporarily out of order
St. Mary's Hospital for Children	20-01 216th Street Queens, NY	13,500 1,500 2,000	#6 Fuel Oil Empty Diesel	1 2 1	In Service In Service In Service

Review of the remaining NYSDEC Environmental Site Remediation databases indicated that there are no brownfields or environmental restoration sites located in proximity to the Alley Creek and Little Neck Bay study area.

Review of the NYSDEC Spill Incident database indicated that there were 42 spills that have occurred within the past 10 years within one-block of Alley Creek and Little Neck Bay. These spills involved the discharge of materials including No. 2 fuel oil, waste oil/used oil, diesel, unknown petroleum, hydraulic oil, raw sewage, unknown hazardous materials, gasoline and dielectric fluid to surface waters, the municipal sewer system, soil and groundwaters. Of these 42 spills, four remain open as of April 2006 and are listed in Table 2-4. These spills affected soil and possible other resources that were not specified in the database. The largest of the open spills (NYSDEC Spill No. 9901942) occurred at a Burger King on Northern Boulevard in May 1999 and resulted in the release of 15 gallons of No. 2 fuel oil into the soil. The spill occurred less than one-quarter mile south of Alley Creek.

Table 2-4. NYSDEC Open Spills through April 2006 - Alley Creek, Little Neck Bay

Location	Date	Spill Number	Quantity	Material	Resource Affected	Spill Cause
Fort Totten	12/15/1995	9511691	< 1 Gallon	Waste Oil/ Used Oil	Soil	Tank Failure
Fort Totten, B-123	07/01/1996	9604364	< 1 Gallon	Waste Oil/ Used Oil	Soil	Tank Failure
Burger King 222-10 Northern Blvd.	05/20/1999	9901942	15 Gallons	No. 2 Fuel Oil	Soil	Unknown
Douglaston Pumping Station DEP-DDC	11/16/2004	0409033	Not Specified	Raw Sewage	Not Specified	Tank Overfill

2.3.2 NYSDEC Permitted Discharge

One SPDES discharge point was identified within the study area. The Belgrave WPCP, SPDES NY-0026841, located in Great Neck, Nassau County, discharges to the head of Udalls Cove (Little Neck Bay) near 34th Avenue and 255th Street. The Belgrave WPCP is a 2.0 MGD wastewater treatment facility discharging an average of 1.3 MGD of secondary treated, disinfected effluent.

2.3.3 Summary

Based upon a review of available databases and other information, none of the potential sources of contamination discussed above are associated with existing or previous combined sewer overflows. These sources, however, have the potential to affect water quality within Alley Creek and Little Neck Bay. The Belgrave WPCP discharge is included in the Alley Creek and Little Neck Bay water quality analyses.